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REMARKS

Claims 1-28 are currently pending in the patent application. The Examiner has rejected Claims 1, 2, 4-11, 13-17, 19, 21-22, and 24-28 under 35 USC 102 as being anticipated by Dinakar; and, has rejected Claims 3, 12, 18, 20, and 23 under 35 USC 103 as being unpatentable over the teachings of Dinakar in view of Packer. Applicants herein present amendments to the language of several of the claims. For the reasons set forth below, Applicants respectfully assert that all of the pending claims are patentable over the cited prior art.

The present application teaches and claims a system, program storage device and method for scheduling the delivery of data packets, as well as a method for interleaving packets, a method for determining minimum initial delay for delivery of packets, and a method for determining minimum buffer size. All of the independent claims, Claims 1, 10, 16, 21, 27, and 28 include the steps of creating a list of virtual data packets representative of all data packets to be scheduled for delivery from the server to the client; calculating a delivery deadline for

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each virtual data packet based on the communications bandwidth from the server to the client and a point in time at which the client must act on the data; and, sorting the list of virtual data packets based on the delivery deadlines calculated for each virtual data packet. Some of the independent claims then additionally recite different steps for completing the stated method and the dependent claims further modify the features of the independent claims.

Applicants respectfully assert that the Dinakar patent does not teach or suggest a system, program storage device, or method which includes those basic steps of creating a list of virtual data packets representative of all data packets to be scheduled for delivery from the server to the client; calculating a delivery deadline for each virtual data packet based on the communications bandwidth from the server to the client and a point in time at which the client must act on the data; and, sorting the list of virtual data packets based on the delivery deadlines calculated for each virtual data packet, let alone the additionally recited limitations set forth in independent Claims 1, 10, 16, 21, 27, and 28, as well as those recited in the dependent claims which depend therefrom.

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The Dinakar patent is directed to a system and method for controlling access to a resource, specifically access to a communication channel. Dinakar creates a plurality of service queues, each of which is assigned for a predetermined range (i.e., amount or percentage) of the resource and allots time slots for each of the queues in proportion to the amount of the resource handled by the queue. When the Dinakar system receives a request to transmit packets along the communication channel, the system assigns the request to a service queue based on the amount of the resource which is being requested. References to the request are then placed in the corresponding slots. Bandwidth is assigned to each slot and the requests are entered into the slots based on the existing number of slotted requests and the requested and the available bandwidth. Access order and frequency of access for each requester is controlled by assignment to slots. Data is transmitted in slot order.

Applicants respectfully assert that the Dinakar patent does not anticipate the invention as claimed. The Examiner has stated that Dinakar provides a "method allowing the data packets to be delivered tom (sic) server (26 fig.1) to a

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client (virtual requesters 15-20 of fig. 1)." Applicants respectfully disagree. The Dinakar patent is directed to controlling access to a communications channel. Dinakar is not transmitting data packets from a server to a requesting client. Rather, Dinakar is queuing requests to transmit packets and is transmitting packets along a communications channel. Applicants further assert that the requesters, 15-20 of Fig. 1 of the Dinakar patent, are real requesters and not virtual requesters. As stated in Col. 4 at lines 55-56 "[e]ach requester has a flow of packets to transmit on the communication channel." Data is not being transmitted from a server to a requesting client.

With respect to the claimed step of creating a list of virtual data packets, the Examiner has cited the passage from Column 4, lines 40-67. The cited passage provides an overview of the Dinakar system but makes no mention of virtual data packets or of making a list of virtual data packets. Applicants note that the term "virtual data packets" is not analogous to the term "data packets." Applicants have detailed what is meant to "virtual data packets" from page 8, line 14 through page 9, line 18. Clearly, a list of data packets would not be a list of

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virtual data packets. Moreover, since Dinakar does not teach or suggest any list of data packets, it cannot be maintained that Dinakar anticipates the claimed step and means for creating a list of virtual data packets. The Examiner additionally cites the passage from Col. 5, lines 1-50 against the claim language. The cited passage details service queues (Col. 5, lines 12-21 and Fig. 3), queue assignments (Col. 5, lines 34-37 and Fig. 4) and slot assignments (Col. 5, lines 46-50 and Fig. 5); however, none of the cited teachings either anticipates or suggests creating a list of virtual data packets.

With regard to the claimed step of calculating a delivery deadline for each virtual data packet based on the communications bandwidth from the server to the client, Applicants first reiterate that the Dinakar patent does not teach or suggest virtual data packets. Moreover, there is nothing in the cited passages which teaches or suggests calculating a delivery deadline for data packets, let alone for virtual data packets, based on the communications bandwidth from a server to the client and a point in time at which the client must act on the data. The present application defines delivery deadlines from page 12, line 20

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through page 13, line 1. A delivery deadline is calculated based on the available bandwidth and based on the point in time when the client needs to act on the data. Applicants respectfully assert that the Dinakar patent neither teaches nor suggests calculating a delivery deadline. The Examiner has cited the aforementioned passage from Col. 4, lines 40-67 which gives a broad overview of the Dinakar system. There is no mention of any delivery deadline in the cited passage. The Examiner has additionally cited the passage found from Col. 5, line 51 through Col. 6, line 48 which teaches inserting requests into slots and servicing (i.e., transmitting packets) in slot order. While Dinakar may create a delivery schedule based on slot assignment, Dinakar does not teach or suggest delivery of a delivery deadline for each packet based on available bandwidth and a point in time at which the client needs the packet.

With respect to the claim feature of sorting the list of virtual data packets based on the delivery deadlines calculated for each virtual data packet, Applicants reiterate that the previously-discussed Dinakar passages do not teach or suggest the steps of creating a list of virtual data packets or of performing delivery deadline calculations

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for virtual data packets. Furthermore, the cited passage found from Col. 6, line 50 through Col. 7, line 55 neither describes nor suggests sorting a list of virtual data packets based on calculated delivery deadlines. The cited Dinakar passage does not mention sorting of packets, just assignment of references to slots based on the number of requests and the amount of bandwidth requested. Applicants respectfully assert that none of the cited passages provide any teachings or suggestions of sorting a list of virtual data packets, or any list, based on calculated delivery deadlines.

It is well established under U. S. Patent Law that, for a reference to anticipate claim language under 35 USC 102, that reference must teach each and every claim feature. Since the Dinakar patent does not teach the steps of creating a list of virtual data packets representative of all data packets to be scheduled for delivery from the server to the client; calculating a delivery deadline for each virtual data packet based on the communications bandwidth from the server to the client and a point in time at which the client must act on the data; or, sorting the list of virtual data packets based on the delivery deadlines

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calculated for each virtual data packet, it cannot be maintained that the Dinakar patent anticipates the invention as claimed. Accordingly, Applicants respectfully request withdrawal of the anticipation rejections of the independent claims, Claim 1, 10, 16, 21, 27 and 28, and of those claims which depend therefrom and add further limitations thereto.

With specific reference to the language of Claims 2, 11, 17 and 22, Applicants respectfully aver that the Dinakar teachings regarding the order at which request are sequentially removed from slots for transmission is not the same as or suggestive of removing temporal collisions, as is detailed by the present Specification on page 15. With respect to the language of Claims 4, 6, 13, 15, 19, 24, and 26, Applicants again note that Dinakar does not teach or suggest virtual data packets, lists of virtual data packets, or delivery deadlines. Accordingly, it cannot be concluded that Dinakar anticipates claim language which recites using delivery deadlines to resolve temporal collisions and or to remove temporal gaps. With regard to temporal gaps recited in Claims 5, 6, 14, 15, 25, and 26, Applicants can find no mention of temporal gaps in the Dinakar patent. Clearly, therefore, Dinakar does not anticipate claim language



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reciting removal of temporal gaps. With respect to Claims 7 and 9, the cited Dinakar passage relate to bandwidth, but make no mention of a buffer on the receiving end. Dinakar is concerned with transmitting packets along a communication channel, but is not concerned with delivery deadlines or the client's capabilities (i.e., buffers) for receiving the packets. Finally, with respect to revising a sorted list of virtual data packets based on variable bandwidth, the cited passages of Dinakar, from Col. 7, line 16-Col. 8, line 65 and from Col 10, line 12-46, make no mention of changes in bandwidth, let alone of how to deal with such. Applicants conclude, based on the foregoing, that none of Claims 1-2, 4-11, 13-17, 19, 21-22 and 24-28 are anticipated by Dinakar.

The Examiner has further cited the Packer patent teachings in combination with Dinakar in rejecting Claims 3, 12, 18, 20, and 23. Applicants rely on the discussion set forth above with regard to the teachings of the Dinakar patent. Applicants note that the Packer patent teaches a method for detecting data rate in a packet communication environment, but does not provide the teachings which are missing from the Dinakar patent. Neither Dinakar nor Packer teaches the steps of creating a list of virtual data packets

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representative of all data packets to be scheduled for delivery from the server to the client, calculating a delivery deadline for each virtual data packet based on the communications bandwidth from the server to the client and a point in time at which the client must act on the data, and, sorting the list of virtual data packets based on the delivery deadlines calculated for each virtual data packet. Moreover, the Packer patent teachings regarding detecting packet rate are directed to using measured data rates for packets which have been delivered. Detecting packet rates for actual data packets which have already been sent (and measured) cannot be said to obviate steps for calculating delivery deadlines for virtual data packets. Furthermore, the claimed invention expressly use the value  $t(\text{start})$ , being the point in time when the client needs to act on data contained in the virtual data packet which has not yet been sent, while Packer does not teach or suggest factoring in the client's needs. The serialization speed which Packer details from Col. 4, line 39 through Col. 5, line 55 is a speed measurement and not a deadline. Similarly, the teachings found from Col. 6, line 44 through Col. 8, line 12 discuss the time that it has already taken for packets to

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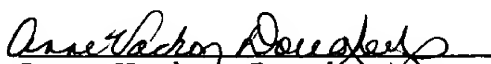
traverse the network. Packer neither teaches nor suggests calculating delivery deadlines using  $t(\text{start})$  where  $t(\text{start})$  is the point in time when the client needs to act on the data to be delivered. Accordingly, Applicants respectfully contend that the combination of teachings from Dinakar and Packer do not obviate the invention as claimed.

Based on the foregoing amendments and remarks, Applicants respectfully request entry of the amendments, reconsideration of the amended claim language in light of the remarks, withdrawal of the rejections, and allowance of the claims.

Respectfully submitted,

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